

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

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Claim 1 (currently amended): A fluidic device comprising:

at least one microchannel, and

at least one capacitive micromachined ultrasonic transducer integrated into one wall of said microchannel.

Claim 2 (original): A fluidic device as in claim 1 in which the microchannel has dimensions in the range 1  $\mu\text{m}$  to 500  $\mu\text{m}$  or more.

Claim 3 (original): A fluidic device comprising:

a base,

at least one ultrasonic transducer integrated in said base, and

a top having a microgroove sealed to said base with the microgroove over the ultrasonic transducer whereby to form a microchannel with an ultrasonic transducer in one wall of said channel.

Claim 4 (original): A fluidic device as in claim 3 in which the microchannel has dimensions in the range of 1-500  $\mu\text{m}$ .

Claim 5 (original): A fluidic device as in claim 3 or 4 in which the ultrasonic transducer is a capacitive micromachined ultrasonic transducer.

Claim 6 (currently amended): A fluidic device as in claim 4 including at least two longitudinally spaced transducers and said top has its microgroove oriented over both of said transducers.

Claim 7 (original): A fluidic device as in claim 4 in which the base is semiconductor material and the ultrasonic transducer is micromachined in said material.

Claim 8 (original): A fluidic device as in claim 4 in which said microgroove includes a compliant membrane which is disposed opposite said ultrasonic transducer.

Claims 9-14 (withdrawn)

Claim 15 (original): A fluidic device as in claim 4 in which the base is silicon or a dielectric material.

Claim 16 (original): A fluidic device comprising:

at least one microchannel having opposed walls,  
at least one capacitive micromachined ultrasonic transducer integrated into one wall, and  
a flexible membrane on the opposite wall opposite the ultrasonic transducer whereby ultrasonic waves from the ultrasonic transducer are reflected back to the transducer by the flexible membrane.

Claim 17 (withdrawn)

Claim 18 (original): A fluidic device comprising:

a silicon base,  
one or more capacitive micromachined ultrasonic transducers integrated into said base,  
and  
a top having a microgroove sealed to said base with the microgroove over said capacitive micromachined ultrasonic transducers.

Claim 19 (original): A fluidic device as in claim 18 including at least two capacitive micromachined transducers spaced along said channel.

Claim 20 (original): A fluidic device as in claim 19 including a processor for operating said transducers in a pulse echo mode.

Claim 21 (original): A fluidic device as in claim 19 including a processor for operating said transducers to receive ultrasonic pulses from one another.

Claim 22 (original): A fluidic device as in claim 18 in which said microgroove includes a compliant membrane opposite said ultrasonic transducer.

Claim 23 (original): A fluidic device as in claim 18 in which the micromachined ultrasonic transducer is operated to mix fluids in the channel.

Claims 24-25 (withdrawn)

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Claim 26 (previously added): A fluidic device as in claim 5 in which the micromachined ultrasonic transducer is operated to mix fluids in the channel.

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